

PATENT CLAIMS

- for
ai
1. A borosilicate glass of high chemicals resistance, characterized by a composition (in % by weight, based on oxide) of:

| | | |
|----|---|------------|
| | SiO ₂ | 70 - 77 |
| | B ₂ O ₃ | 6 - < 11.5 |
| | Al ₂ O ₃ | 4 - 8.5 |
| 10 | Li ₂ O | 0 - 2 |
| | Na ₂ O | 4 - 9.5 |
| | K ₂ O | 0 - 5 |
| | with Li ₂ O + Na ₂ O + K ₂ O | 5 - 11 |
| | MgO | 0 - 2 |
| 15 | CaO | 0 - 2.5 |
| | with MgO + CaO | 0 - 3 |
| | ZrO ₂ | 0 - < 0.5 |
| | CeO ₂ | 0 - 1 |

- 20 and, if appropriate, standard refining agents in standard amounts.

2. The borosilicate glass as claimed in claim 1, characterized by a composition (in % by weight, based on oxide) of:

| | | |
|----|---|--------------|
| | SiO ₂ | 70.5 - 76.5 |
| | B ₂ O ₃ | 6.5 - < 11.5 |
| | Al ₂ O ₃ | 4 - 8 |
| 30 | Li ₂ O | 0 - 1.5 |
| | Na ₂ O | 4.5 - 9 |
| | K ₂ O | 0 - 5 |
| | with Li ₂ O + Na ₂ O + K ₂ O | 5.5 - 10.5 |
| | MgO | 0 - 1 |
| 35 | CaO | 0 - 2 |
| | with MgO + CaO | 0 - 3 |
| | ZrO ₂ | 0 - < 0.5 |
| | CeO ₂ | 0 - 1 |

and, if appropriate, standard refining agents in standard amounts.

3. The borosilicate glass as claimed in claim 1 or 2,
5 characterized in that it additionally contains (in % by weight, based on oxide):

| | | |
|----|----------------|---------|
| | SrO | 0 - 1.5 |
| | BaO | 0 - 1.5 |
| 10 | with SrO + BaO | 0 - 2 |
| | ZnO | 0 - 1. |

4. The borosilicate glass as claimed in at least one
of claims 1 to 3, characterized in that it additionally
15 contains (in % by weight, based on oxide):

| | | |
|--|---|--------|
| | Fe ₂ O ₃ + Cr ₂ O ₃ + CoO | 0 - 1 |
| | TiO ₂ | 0 - 3. |

- 20 5. The borosilicate glass as claimed in at least one of claims 1 to 4, characterized in that, apart from inevitable impurities, it is free of As₂O₃ and Sb₂O₃.

- 25 6. The borosilicate glass as claimed in at least one of claims 1 to 5, having a coefficient of thermal expansion $\alpha_{20/300}$ of between > 5 and $6.0 \times 10^{-6}/K$, in particular between > 5.3 and $5.9 \times 10^{-6}/K$, and a working point V_A of at most 1180°C.

- 30 7. The use of the borosilicate glass as claimed in at least one of claims 1 to 6, as sealing glass for Fe-Co-Ni alloys.

- 35 8. The use of the borosilicate glass as claimed in at least one of claims 1 to 6 as instrument glass for laboratory applications and for the construction of chemical installations.

9. The use of the borosilicate glass as claimed in at least one of claims 1 to 6 as primary packaging material for pharmaceuticals, for example as ampoule glass.

ABSTRACT

The invention relates to a borosilicate glass of high chemicals resistance, having a composition (in % by weight, based on oxide) of SiO_2 70-77; B_2O_3 6 - < 11.5; Al_2O_3 4-8.5; Li_2O 0-2; Na_2O 4-9.5; K_2O 0-5; with Li_2O + Na_2O + K_2O 5-11; MgO 0-2; CaO 0-2; with MgO + CaO 0-3; ZrO_2 0-<0.5; CeO_2 0-1.

The glass is particularly suitable for use as primary packaging material for pharmaceuticals.